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ABSTRACT

This document presents 20 activities for grade 1 students and emphasizes using a calculator. It is related to topics from a primary mathematics curriculum. Mathematical topics addressed include counting, addition and subtraction, the commutative property, greater than and less than, and place value. Each activity includes a statement of skills to be learned, materials needed, and suggested procedures. (PK)

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USING THE CALCULATOR TO TEACH FIRST GRADE MATH SKILLS

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ED289714

Time: 45 min session

Skills: Understand what a calculator is and what it is used for
Understand some basic rules for using a calculator
Learn basic vocabulary
Learn to turn the calculator ON and OFF
Learn to CLEAR the calculator
Locate the numerals
Practice basic fingering

Materials:
Calculators
Keyboard and Fingering Chart
Chart tablet to record uses of calculators

Procedure:

DIRECTED ACTIVITIES

Distribute calculators
Discuss what they are used for and record responses on tablet
Use large chart to locate CLEAR
Solar calculators are ON when open and OFF when closed
Write vocabulary on chalkboard: calculator on off clear
display keyboard
Practice turning them ON, clearing them, and turning them OFF
Basic rule: Use the fingers of your writing hand. Do not use pencil erasers.
Use large chart to demonstrate fingering
Practice index finger: 0 1 4 7
Clear
Practice third finger: 2 5 8
Clear
Practice fourth finger: 3 6 9
Clear
Practice randomly 0 through 9 (Keying in phone numbers is fun.)

FREE ACTIVITY

Work in partners
Practice numerals 0 through 9
Practice numeral sequences like addresses, zip codes, etc.

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ACTIVITY 1 LOCATING 10 THROUGH 100

Time: 45 min session

Skills:

Locate numerals 10 through 100
Practice basic fingering

Materials:

Calculators
Keyboard and Fingering chart
100 grid-type chart

Procedure:

DIRECTED ACTIVITY

Turn calculator ON
Use keyboard and fingering chart to demonstrate 10 through 19
Clear each time
Use 100 chart to key in numerals 20 through 100
Locate random numerals, key them in, check on the large chart, clear

FREE ACTIVITY

Work in partners
Practice numerals 0 through 100

VARIATIONS:

Count from 100 to 300, 200 to 300, etc.
How many places does the calculator have? 8
What is the highest number you can key in?
Try reading patterns like these:

2
22
222
2,222
22,222
222,222
2,222,222
22,222,222

ACTIVITY 2 + - =

Time: Two 45 min sessions

Skills:

Locating keys for + - =
Practice in writing equations
Basic fact practice

Materials:

Calculators
Keyboard and Fingering chart
Worksheet for addition equations
Worksheet for subtraction equations
Paper for recording equations during free activity

Procedure:

DIRECTED ACTIVITY

Turn calculators ON
Locate + - = on the chart and on the keyboard
Special Note: The calculators do not show the + - = signs, only the actual numerals in the equation. This needs to be explained.
Distribute worksheet of addition equations.
Monitor progress.

FREE ACTIVITY

Work in partners.
Develop equations.
Solve them and record the answers.

Repeat this session using subtraction equations.

VARIATION: Write problems using multiple addends.

**Special Note: Using both hands becomes a problem when students are asked to record answers while working with the calculator. They have a tendency to work the calculator with the "other hand" when writing with pencils.

ACTIVITY 3 COUNTING PATTERNS USING THE =

Time: 45 min session

Skills:

Using the = function to count.
Discovering other patterns

Materials:

Calculators
Paper to record patterns.

Procedure:

DIRECTED ACTIVITY

Make your calculator count by ones doing this 1+1= = = = = = = = = =
Say the numbers as your calculator counts.

Try this: 2+2= = = = = = = = = = = =

Try this: 5+5= = = = = = = = = = = = = =

Try this: 10+10= = = = = = = =

FREE ACTIVITY

Work in pairs to discover other patterns.
Record the patterns on paper. TURN IN (In order to be certain everyone participated appropriately, the papers had to be turned in.)

VARIATIONS:

Go beyond 100 watching your calculator count.
(Keep the 2, 5, and 10 pattern going beyond 100)

***MAKE A THOUSAND BOOK Use 100 grid paper and make a book of ten sheets.
Watch your calculator count to 1000, using the 1+1= = = = = = = = = = =
Record it in the THOUSAND BOOK
This can be used as an ongoing center activity.

ACTIVITY 4 PATTERNS IN THE 100 CHART

Time: Two 45 min. sessions

Skills:

Recognizing number patterns.
Developing concept of pattern counting.

Materials:

Calculators
Keyboard and fingering chart.
100 chart
Individual 100 grid papers

Procedure:

DIRECTED ACTIVITY (session #1)
Use the code 1+1= = = = = = = =to fill in a 100 grid.(move horizontally)
Then:
Use the code 1+10= = = = = = = = to fill in a 100 grid.(move vertically)
Contine with 2+10= = = 3+10= = = 4+10= = = = ETC

DIRECTED ACTIVITY (session #2)
Use the code 2+2= = = = = = = to fill in a 100 grid by twos.
Use the code 5+5= = = = = = = to fill in a 100 grid by fives.

VARIATIONS:
Work with 100 grid paper to explore other patterns or go beyond 100 using the same patterns as directed above.

**SPECIAL NOTE It seems important to me for first graders to record what they do on a 100 grid in order to understand the placement and organization of the numbers from 1 - 100. For example when they can write (37) in the right box onthe 100 grid, I know they know what they need to know about where 37 belongs in the scheme of things.

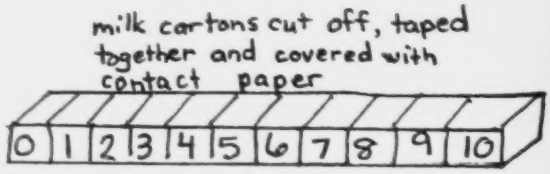
ANOTHER VARIATION WITHOUT THE 100 grid:
Give paper like this [CODE 7+7= :] 7, 14, 21, 28, 35, 42, 49, 56,
It is acceptable to record patterns like this.

ACTIVITY 5 ADDITION AND SUBTRACTION

Time: Center Activity

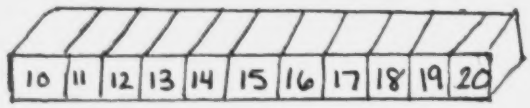
Skills: Practice in basic addition and subtraction facts.
Learning there are many combinations for a given sum.
Practice in self-checking.

Materials:
calculators
set of addition game cards.
set of subtraction game cards
answer box



Procedure:
Solve the equation on each game card and place the card in the box naming the sum of the equation.
Turn calculator on.
Check each box of cards.
Resort, if necessary.

Variation:
Turn the answer box around for Level II game.
Make game cards.



ACTIVITY 6 IS IT ADDITION OR SUBTRACTION?

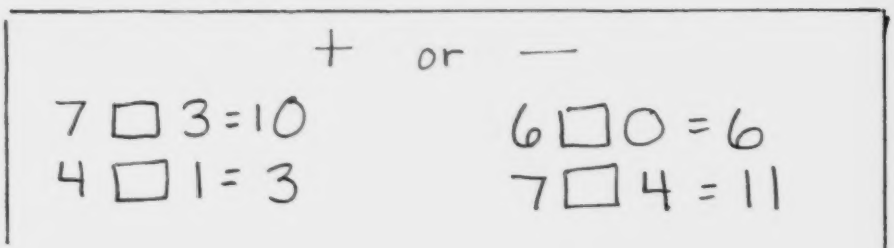
Time: Center activity

Skills:

Developing "mental math" skills: estimating, is this reasonable?, and the guess and check strategy.
Practice in basic addition and subtraction.

Materials:

Calculators
Activity pages



Procedure:

Complete the equations.
Use the calculator to verify correctness.
Hand in activity pages. Activity pages are better than wipe-off cards because I need to verify that everyone attended the center and completed the activity.

Variation: Use more difficult equations.

ACTIVITY 7 COMMUTATIVE PROPERTY FOR ADDITION

Time: Center Activity

Skills:

Developing the concept of commutative property of addition
Practice the basic addition facts.
Constructing commutative equations.

Materials:

calculators
worksheet

3+1=___	4+2=___	6+3=___	5+1=___
1+3=___	2+4=___	3+6=___	1+5=___
0+7=___	8+2=___	7+1=___	2+3=___
7+0=___	2+8=___	1+7=___	3+2=___

Procedure:

Complete the worksheet using the calculator.
Turn worksheet in.

Develop your own:

___+___=___	___+___=___	___+___=___	___+___=___
___+___=___	___+___=___	___+___=___	___+___=___
___+___=___	___+___=___	___+___=___	___+___=___
___+___=___	___+___=___	___+___=___	___+___=___

Variations:

Experiment with more difficult equations.

ACTIVITY 8 PROBLEM SOLVING

Time: Center Activities (Many story problem sheets can be made up .)

Skills:

Developing "mental math" skills
Developing story-problem grammar and concepts
Application of basic facts
Construction of equations
*These are process-oriented activities. The calculator relieves the computational load so the student can focus on "what to do" with the information.

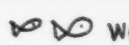
Materials:

Calculators
Activity pages

Procedure:

Complete the activity pages using the calculator. Hand in.

Variations: Write your own story problems for your friends to work. Or, you can set up a play store using real grocery items. It is fun to count up "piggy bank" collections.

2  were in the .
Bill bought 3 more.
How many in all?
___ □ ___ = ___

Sue had $4.00.
Her allowance will be $5.00.
She earned $1.00 for cleaning the house.
Will she be able to buy a record for $7.95? ___

ACTIVITY 9 CODED WORDS

Time: Center Activity

Skills:

Practice basic facts.
Extend "mental math" skills with more difficult equations.

Materials:

Calculators
Code cards
Code sheets such as:

A=1	J=10	S=19
B=2	K=11	T=20
C=3	L=12	U=21
D=4	M=13	V=22
E=5	N=14	W=23
F=6	O=15	X=24
G=7	P=16	Y=25
H=8	Q=17	Z=26
I=9	R=18	

Whose name is this?

20-1 6-5 10+2 6+6 100-75

How much is your name worth?

Procedure:

Complete the code sheets.
Turn in.

Variations:

Use more difficult equations.
Use interesting words, phrases, directions, etc.
Have students make up their own code sheets for class distribution.

ACTIVITY 10 WHAT NUMBER COMES NEXT?

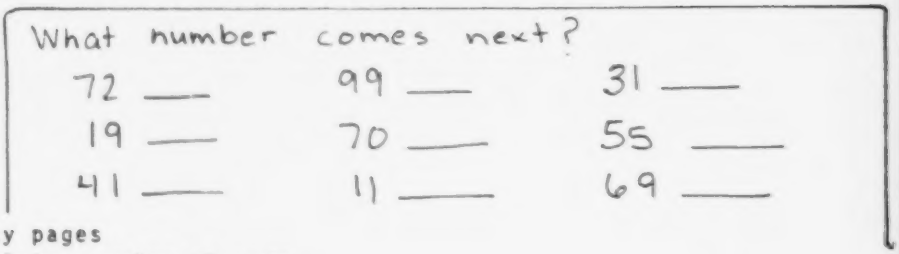
Time: Center Activity

Skills:

Developing "mental math" skills
Numerical sequence
Foundation activity for greater than and less than concept
Developing "counting on" strategy

Materials"

Calculators
Activity pages



Procedure:

Complete activity pages
Check with calculators using +1 code
Turn in.

Variation: Use larger numbers. 421 _____ 1843_____
Have students make up activity pages to exchange.

ACTIVITY 11 GREATER THAN AND LESS THAN

Time: Center Activity

Skills: Developing "mental math" skills (counting on and counting back, sequencing)
Developing the concept of one more than and one less than
Practicing the + and - functions

Materials:
Calculators
Activity pages

What is 1 more than?		What is 1 less than?
29	99	51
72	31	68

Procedures:
Solve the problems
Use the calculators to verify
correctness (-1 and +1 codes)

Variations:
Use 3 less than and 3 more than, 5 less than and 5 more than,
10 less than and 10 more than, etc.
Generalize to _____7324_____ etc.

ACTIVITY 12 GREATER THAN AND LESS THAN

Time: Center Activity

Skills:
Distinguish the greatest or least in a pair of numbers
Practice using three addends.

Materials:
Calculators
Activity pages

Procedure:

Circle the greatest in each pair.	Circle the least in each pair.
6 9	6 9
3 1	3 1
4 3	4 3
Add.	Add.
You should get 16	You should get 10

Variations: Choose more difficult combinations.
Try a page of tricky numbers.

Circle greatest.	Circle least.
13 31	14 41
93 39	57 75
14 41	64 46
Add.	Add.
You should get ___	You should get___

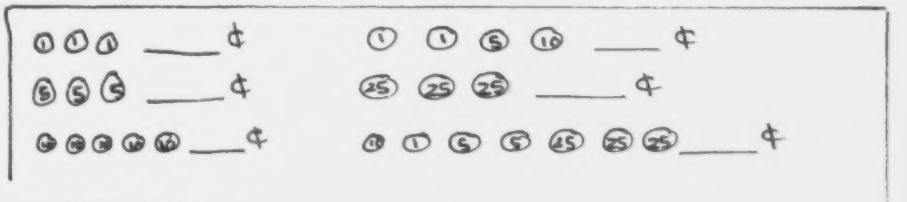
ACTIVITY 13 COIN COMBINATIONS (patterns)

Time: Center Activity

Skills:
Recognizing use of patterns in counting money.
Practicing using the + function

Materials:
Calculators
Coin demonstration cards using real coins laminated to cards
Activity pages showing sets of the same coin and combinations of coins

Procedure:
Count the money.
Record your answer.
Verify with the calculator.



Variations:
Use mixed coin combinations
Ask which set has the greatest amount
Learn to convert larger amounts to dollars and cents.

Cut out toy pictures with prices. Paste on gift shapes. Add up the cost of the gift. At Christmas, these were on stocking shapes with a place to write the total at the top of the stocking.

Play store using real toys with price tags.

Add up piggy bank collections.

ACTIVITY 14 CALCULATED COMBINATIONS

Time: Center Activity

Skills:
- Visualizing number.
- Concept of counting on (mental math)
- Beginning to estimate

Materials:
- Calculators
- Activity pages

Procedure:
- Think of a starting place
- Record it.
- Continue until you get a combination for the number in the circle
- Record the combination

(9)	42	19
3 + 1 + 2 + 3	20 + 20 + 1 + 1	
2 + 2 + 4 + 1		

Variations:
- Larger numbers
- Subtraction function (counting down)
- How many different combinations can you generate for a given number?

(100)	- 40	- 30	- 2	(32)
(100)				(10)

ACTIVITY 15 READING NUMBER NAMES

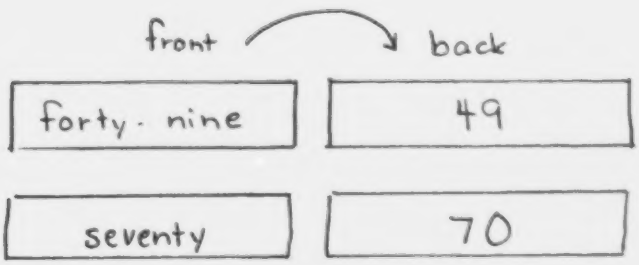
Time: Center Activity

Skills:
Recognizing number names

Materials:
Calculators
Number word/number cards

Procedure:
Look at each card
Key in the number
Turn the card over to verify correctness

Variations:
Use hundreds and thousands



ACTIVITY 16 ORDINAL NUMBERS

Time: Center Activity

Skills:
Application of ordinal number knowledge
Practice in addition

Materials:
Calculators
Activity pages

Procedure:
Add the first, third, and sixth numbers. Use the check sum.

5	17	23	8	7	2	30

Continue using same procedure.

Variation:
Use more difficult ordinals.
Use multiple ordinals.

ACTIVITY 17 USING GUESSES

Time: Center Activity

Skills:

Developing idea of "take a guess" and try again
Developing estimation skills so you know if you are close
To be able to tell if you have a reasonable and practical answer
*Special Note - We need to promote experimentation with numbers because even first graders are low risk takers.

Materials:

Calculators
Activity pages

Procedures:

Try to solve the problems.
Use the calculator to experiment with various combinations.

Level 1

7 3 1 2

1. The sum of 3 numbers is 11.
What are the numbers? ___

0 1 7 18

2. The sum of 3 numbers is 19.
What are the numbers? ___

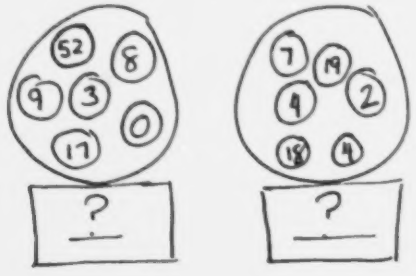
Level 2

The sum of 29 and 10 is about 20, 30, or 40.

The sum of 52 and 17 is about 50, 60, or 70.

Variations:

Use numbers in the hundreds or thousands.
Develop activity pages for each other.
Gumball activity: Predict and then check it out.



ACTIVITY 18 PLACE VALUE PRACTICE

Time: Center Activity

Skills:
Developing the concept of tens and ones

Materials:
Calculators
Activity pages

Procedure: Use calculator to solve.

Lesson 1

10 + 10 + 10 + 10 + 10 + 1 + 1 + 1 = ____

10 + 10 + 10 + 1 + 1 + 1 + 1 + 1 = ____

10 + 10 + 10 + 10 + 10 + 10 + 10 + 1 = ____

Lesson 2

3 tens and 9 ones = ____

7 tens and 0 ones = ____

8 tens and 3 ones = ____

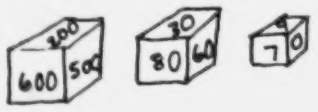
Lesson 3

Key in 35. Add 2 tens. You have ____

Key in 57. Take away all the tens. You have ____.

Key in 19. Add 4 tens. You have ____.

VARIATION:
Play "ROLL A NUMBER" Use large, medium, and small paper cubes with numbers on each side. Roll them. Put in order. Key in the hundreds, key in the tens, key in the ones. Did you say the number correctly? Record your roll on an activity page.



200 + 30 + 9 = 239

ACTIVITY 19 ADDITION DESIGNS

Time: Center Activity

Skills:

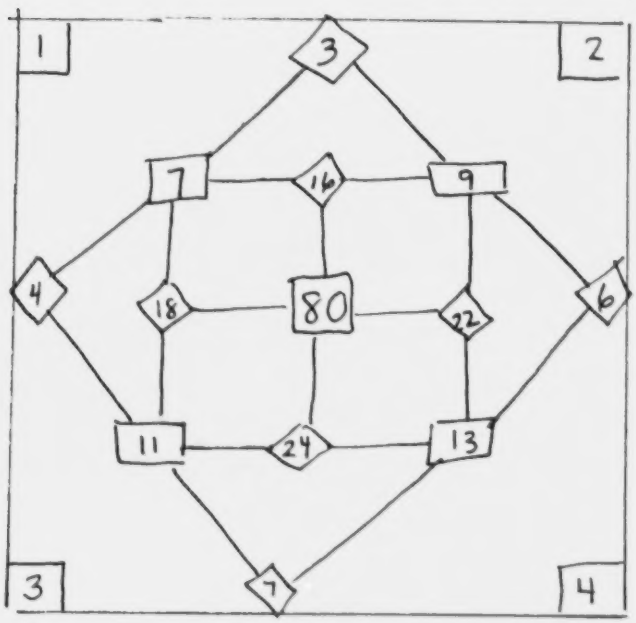
Experience using strings of numbers.
Experiencing the cumulative effect of strings of numbers.
Developing "mental math" skills.

Materials:

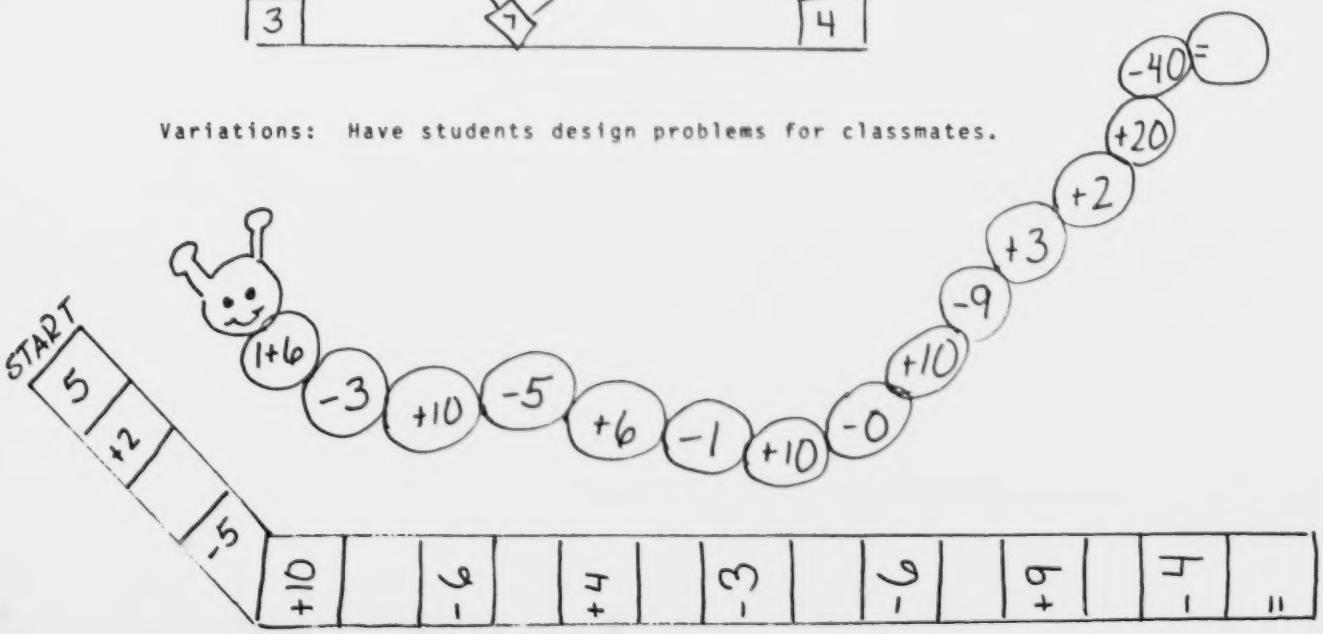
Calculators
Design pages

Procedure:

Start with any four numbers.
Work through the design to the middle answer.



Variations: Have students design problems for classmates.



ACTIVITY 20 WOW POSTERS

Time: Individual or Group Charts

Skills:

Stimulating interest in math. Anytime they are asked to use large nubmers, there is a great deal of excitement.
Encouraging experimentation with number patterns.
Encouraging parents and siblings to get involved.

Materials:

Calculators
Posters

Procedure:

Each person or team picks a pattern and follows it through using the calculator.

WOW

* 500 + 500 = = = = = = = = =

500	1,000
1,500	2,000
2,500	3,000
3,500	4,000
4,500	5,000
5,500	6,000
6,500	7,000
7,500	8,000
8,500	9,000
9,500	10,000